National Management Measures to Control Nonpoint Source Pollution from Urban Areas and NPDES Phase II Stormwater Permits

Urban NPS Management Measures Guidance

- Coastal MMs in January 1993 CZARA Guidance Chapter 4
- Draft National MMs in FR Sept. 2002
- Public Comments Received Until February 2003
- Updated with Current Literature (March 2005)

New Approach (vs. CZARA 1993)

- Watershed Based
- Inland and Coastal Waters
- Groundwater and Surface Water
- Complete Runoff Management Program
  - Step by Step Logical Sequence
  - Added four Management Measures (in red on next slide)
- Added Resources: Organizations/URLs

Runoff Management Program Framework

Guidance and Its Applicability to NPDES Phase II

- Nonpoint Source Guidance
  - Twelve Measures to address Urban Pollution in a Watershed Approach
- NPDES Storm Water Regulations
  - Six Minimum Measures to be addressed by regulated municipalities

Minimum Control Measures vs. Management Measures

	Program Framework	Watershed Protection	Site Development	Runoff Treatment	OWTSs	Bridges and Highways	Construction Site E&SC	Pollution Prevention	Operation and Maintenance	Program Evaluation
Public Education	✓							✓		
Public Involvement	✓							✓		
Illicit Discharge	✓				✓			✓		
Construction Site E&SC	✓						✓			
Post-construction	✓	✓	✓	✓		✓			✓	✓
Pollution Prevention	✓				✓	✓	✓	✓		✓

Program Framework and Objectives

Develop, implement, and enhance a runoff management program framework that

- Has adequate legal authority
- Has an effective institutional structure
- Has adequate funding and staffing
- Uses comprehensive watershed planning
- Fosters input from citizens, stakeholders, and technical experts
- Coordinates with other agencies

Program Framework and Objectives

Example practices

- Partnerships & coordination
- Subwatershed plans
- Ordinances
- Funding
- Staffing

Watershed Assessment

- Characterize watershed conditions
  - Reference Conditions/Impairments e.g. 303(d) listing, Shellfish Bed / Beach Closures
- Establish a set of watershed indicators
  - BOD, TSS, Temperature, Toxicity Tests, Rapid Physical/Biologic Protocols

Watershed Assessment

- Water quality monitoring
- Receiving water quality modeling
- Physical habitat monitoring
- Assessment of fish and macroinvertebrate assemblages

Watershed Protection

- Avoid developing areas particularly susceptible to erosion and sediment loss
- Preserve areas that provide important water quality benefits
- Site development projects to protect the natural integrity of waterbodies and natural drainage systems

Watershed Protection

- Conservation easements
- Deed restrictions
- Stream buffers
- Cluster zoning

Site Development

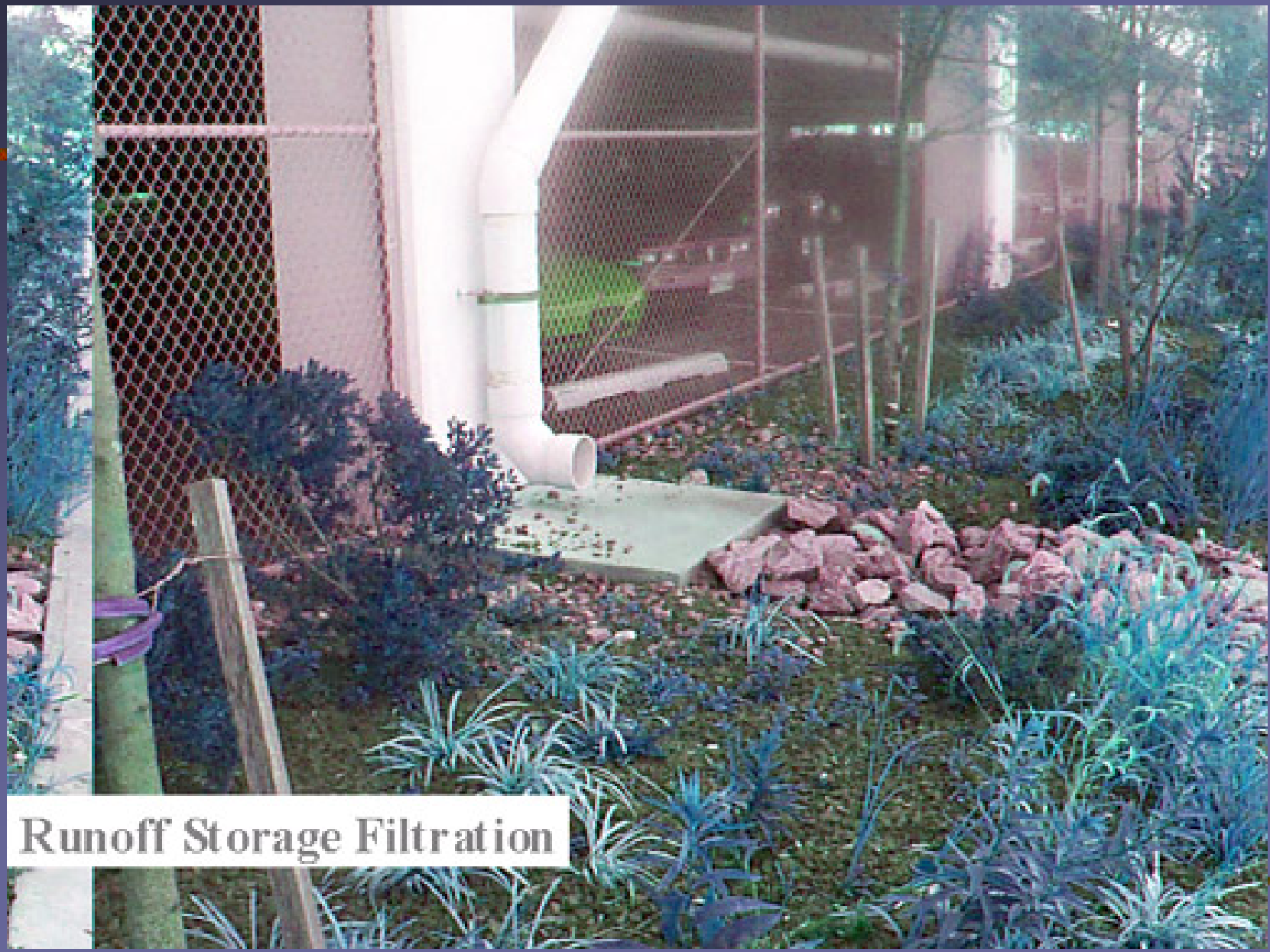
- Maintain predevelopment site hydrology
- Protect areas that
  - Provide important water quality benefits
  - Are particularly susceptible to erosion
- Limit increases of impervious areas
- Limit land disturbance activities to reduce
  - Erosion and sediment loss
  - Disturbance of natural drainage features and vegetation

Site Development

- Site fingerprinting (place development in environmentally sound site locations)
- Reducing the hydraulic connectivity of impervious surfaces (disconnect these areas)
- Decreasing street pavement length and width
- Other LID

Fingerprinting

Disconnectivity



New Development Runoff Treatment

- Reduce average annual TSS loadings by 80 percent
- Reduce postdevelopment TSS loadings so that the average annual TSS loadings are no greater than predevelopment loadings

New Development Runoff Treatment

- Detention ponds
- Infiltration basins
- Media filters
- Grassed swales
- Other LID

New and Existing On-Site Wastewater Treatment Systems

- Identify and protect sensitive areas to ensure that pollutant and hydraulic loadings from OWTS do not impact
  - Wellhead protection zones
  - Nitrogen- and phosphorus-limited waters
  - Shellfish habitat
- Ensure operation and maintenance of new and existing OWTS

New and Existing On-Site Wastewater Treatment Systems

- Comprehensive planning to protect sensitive waters
- Establishment of performance requirements for new OWTS
- Recirculating sand/media filters
- System inspections

Bridges and Highways

- Minimize road-building mileage and crossings
- Establish setbacks
- Limit runoff with structural controls
- Minimize use of pesticides, herbicides, fertilizers, and deicing chemicals
- Reduce the use and spill potential of hazardous materials

Bridges and Highways

- Scupper drains
- Soil bioengineering
- Reduction of direct discharges
- Cofferdams

Construction Site Erosion, Sediment, and Chemical Control

- Reduce erosion and retain sediment on-site during and after construction
- Use good housekeeping practices to prevent off-site transport of waste material and chemicals
- Minimize application and generation of potential pollutants

Construction Site Erosion, Sediment, and Chemical Control

- Construction phasing
- Stockpiling topsoil
- Sediment basins
- Storm drain inlet protection
- NEW ADD-COMPOSTING from OSW

Pollution Prevention

Implement pollution prevention programs to reduce pollutants generated from

- Household hazardous chemicals
- Lawn and garden activities
- Commercial and municipal turf management
- Parking lots, gas stations, and other commercial entities not under NPDES purview
- Improper disposal of pet excrement
- Trash accumulation

Pollution Prevention

- Alternative products
- Integrated pest management
- Illicit discharge detection
- Trash management

Retrofitting Existing Development

- Identify opportunities to improve existing urban runoff control structures
- Devise a schedule for implementing appropriate controls
- Limit destruction of natural conveyance systems
- Preserve, enhance, or establish buffers
- Promote redevelopment by assessing previously contaminated soils

Retrofitting Existing Development

- Stream restoration
- Trash racks
- Daylighting
- Retrofit parking lots
- Other LID

Operation and Maintenance

- Establish a program for inspections and maintenance of runoff management practices
- Maintain transportation and storm drain infrastructure to reduce loads at their source
- Inspect, maintain, repair, or restore
  - Runoff controls
  - OWTS
  - Aquatic buffers

Operation and Maintenance

- Street sweeping
- Storm drain flushing
- Inspection of OWTS
- Sediment removal from structural controls

Evaluate Program Effectiveness

- Reassess program framework (MM #1)

  Are objectives being met?

  Identify and implement improvements
- Reassess watershed (MM #2)

  Is water quality improving or not?
  If not, re-evaluate MMs and practices